

Atrial fibrillation after cardiac surgery: Prevention and management: The Australasian experience

Mohammed Alawami^{a,*}, Andrew Chatfield^a, Rajaie Ghashi^b, Laurence Walker^c

^a Cardiology Department, Auckland City Hospital, Auckland

^b Science Department, Auckland University, Auckland

^c Cardiothoracic and Vascular Intensive Care Unit, Auckland City Hospital, Auckland

^{a,b,c} New Zealand

Background: Atrial fibrillation (AF) after cardiac surgery is a major health problem that is associated with a significant financial burden. This paper aims to highlight this problem and review the current guidelines in the prevention and management of AF after cardiac surgery, providing our experience in the Australasian centers.

Methods: We conducted a literature review using mainly PubMed to compare the current practice with the available evidence. EMBASE and Cochrane library were also searched. We concurrently developed an online questionnaire to collect data from other Australasian centers regarding their approach to this problem.

Results: We identified 194 studies that were considered relevant to our research. We did not find any formal protocols published in the literature. From our Australasian experience; seven centers (58%) had a protocol for AF prophylaxis. The protocols included electrolytes replacement, use of amiodarone and/or β -blockers. Other strategies were occasionally used but were not part of a structured protocol.

Conclusion: The development of an integrated medical and surgical protocol for the prophylaxis of AF after cardiac surgery is an important aspect for the care of postoperative cardiac patients. Considerations of prophylactic strategies other than those routinely used should be included in the protocol. This area should receive considerable attention in order to reduce the postoperative complications and health costs.

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Keywords: Atrial fibrillation, Arrhythmia, Cardiac surgery, Prevention of atrial fibrillation, Post operative atrial fibrillation

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* Corresponding author at: Cardiology Department, Auckland City Hospital, 2 Park road, Grafton, 1023 Auckland, New Zealand.
E-mail address: alawami241@gmail.com (M. Alawami).



P.O. Box 2925 Riyadh – 11461KSA
Tel: +966 1 2520088 ext 40151
Fax: +966 1 2520718
Email: sha@sha.org.sa
URL: www.sha.org.sa



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Introduction

Cardiac surgery is associated with a high risk of postoperative atrial fibrillation (AF). The incidence is estimated to be around 30–40% with the greatest risk among patients undergoing valvular heart surgery [1].

AF causes a huge financial burden on the health budget. We could not find any recent data about the cost of postoperative AF. A few studies looked into the cost of AF in a general sense. The cost of additional days in-hospital, including intensive care unit care alone, adds a significant cost given the frequency of the problem. Two old studies in the USA found that, although the cost of postoperative AF in an individual patient is low in comparison to other postoperative complications, the frequency of the problem is high and therefore the total cost of AF is higher than any other complication [2,3].

Methods

We performed a literature review about the current medical and surgical AF prophylactic strategies. We used Medline as the main search engine. EMBASE and Cochrane library were also searched. We used the keywords “atrial fibrillation” and “cardiac surgery.” The search was fil-

Abbreviation
AF Atrial fibrillation

tered to articles on humans and those published in English in the last 5 years. The search was completed in December 2016. We compared the current practice to our protocol in Auckland City Hospital, New Zealand, and 11 other cardiac intensive care units in Australia and New Zealand. We obtained the information from other Australasian centers through an online questionnaire that we developed. This included basic information about their centers, whether or not they had protocols and what these protocols include, specific questions about the use of some medications and/or surgical techniques, and any other approaches they might have.

Results

In the literature search, 1687 articles were identified in the initial search. Of those, only 194 were found to be relevant to our research. We manually went through the abstracts of all those articles and found that most of them did not address the topic of interest.

We had information about 12 out of the 36 training-accredited cardiac intensive units across

Table 1. Use of medications and electrolytes across different centers for the prophylaxis of AF.

	No	Rarely	Occasionally	Routinely
Amiodarone	5 (41.7%)	2 (16.7%)	4 (33.3%)	1 (8.3%)
Magnesium	1 (8.3%)	1 (8.3%)	2 (16.7%)	8 (66.7%)
Steroids	10 (83.3%)	1 (8.3%)	1 (8.3%)	0
Colchicine	11 (91.7%)	0	1 (8.3%)	0
Ranolazine	12 (100%)	0	0	0
Antioxidants	10 (83.3%)	1 (8.3%)	1 (8.3%)	0
Carvedilol	10 (83.3%)	1 (8.3%)	1 (8.3%)	0
Other β -blockers	3 (25%)	2 (16.7%)	3 (25%)	4 (33.3%)
Other antiarrhythmic	8 (66.7%)	4 (33.3%)	0	0

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